TENNESSEE FARMER.

How much more delightful to an undebauched mind is the task of making improvements on the earth than all the vain glory which can beacquired from ravaging it, by the most uninterrupted career of conquests."—WASHINGTON.

PUBLISHED BY EMMERSON & DEADERICK.] [J. P. DEADERICK, EDITOR.

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TENNESSEE FARMER.

Jonesborough, April, 1839.

Popular Education.

Through the politeness of the author, JOSEPH ESTABROOK, Esq., A. M., President of East Tennessee College, we have been furnished with a small pamphlet of 18 pages, under the above caption, being his official address at the last annual commencement of that institution.* Believing with the author, that although but little can now be added "to the present stock of knowledge on this subject," yet that it is one of those vital national interests which should be periodically and often brought to the notice of the public eye, we make it the occasion of a few cursory observations in relation to the general topic.

The leading idea of this address cannot be too powerfully impressed upon the popular mind.—That idea is that there is an intimate mutual relation subsisting between the individual interests of Colleges, Academies, and Common Schools, and that no general system of Education can prosper which excludes either from its appropriate agency in the great work of diffusing the lights of universal knowledge throughout a community. This truth acquires great force from the reflection that we have no Normal schools for the qualifications of teachers, and that our Colleges must necessarily assume the task of qualifying tutors for the superintendence of our Academies, and the Academies furnish the teachers of our Common Schools. The melancholy fact that this routine is not more rigidly observed, constitutes the great defect in our existing systems of Common School education; a defect which neutralizes the most salutary legislative enactments, and explodes, in practice, the most laboured figments of the most plausible theories.

We are aware that prejudices exist, among portions of our population, against the higher literary institutions of the country. Many in the humbler walks of life look upon our Colleges and Universities as designed only to benefit the rich and the aristocratic—seminaries in which they have no part nor lot nor interest of any description. A moment's reflection will rectify this great, but very prevalent, error. If ever the teachers of Common Schools acquire a higher grade of qualification than they at present possess, we repeat, that this improvement must come from our Colleges. They may indeed be educated at the Academies; but the teachers of Academies must be educated at the Colleges.—So that the source of this qualification is ultimately the same; and the poorest man in the community who has the privilege of sending a son to the humblest free school in the land is indirectly, but most deeply, indebted to the Col-

*From a catalogue of the officers and students of the College, received with the address, we are gratified to perceive that it is in a highly flourishing condition.—The faculty consists of 4 Professors and 1 Tutor in the preparatory department. The last session closed with 111 students. The College Library numbers about 3000 well selected volumes. The apparatus for illustrating the Sciences, the Mineralogical and Geological Cabinets, &c., are said to be extensive and valuable; and the expenses of the institution strike us as being exceedingly low, even for the Western country, the estimated charges for a session, to those who occupy the College dormitories, including boarding, tuition, and all other necessary incidental expenses, being only $48 00.

lege for the proper education of that son—provided always that the teacher happens to be qualified for his task. We might familiarly illustrate this point, farther, by adverting to the fact that the Colleges educate the men, who write the books to which we all go for knowledge and instruction.

Let therefore no prejudices exist against our Colleges; more especially as their prosperity is equally dependant upon the proper management of the lower schools, inasmuch as the mental appetite, when healthfully cultivated, "grows with what it feeds on," and he who has been instructed in the Common School will be very apt to climb higher and higher until he treads the very heights of human science.

As, however, so large a majority of our population receive no other instruction but that of the Common School, it has been argued that this should, therefore, be made the best school; and the sentiment is a just one, except so far as it may seem to imply, that this end can be gained without the aid of the higher seminaries. The great and standing defect in our systems of Common School education is, confessedly, the want of qualified teachers. The work of the ordinary schoolmaster is very frequently a mere mechanical operation. It is a singular fact, which those who have not personally observed it, will scarcely believe, that the pupil of such a tutor will be able to repeat the alphabet, to spell and to read, without ever having been brought to think or discriminate beyond the mere differences of sight and sound in the combinations of syllables and words. The mind has been left almost totally dormant; and those senses only exercised which are participated in common with the parrot and the pig.—Indeed, this species of training can be (and has been) closely imitated by an ingenious mechanism acting upon an automaton statue of wood, metal or stone. So, also, with the higher accomplishments of grammar and arithmetic; the graduate of such a Professor will be found to have added very little to the colloquial elegance of his language, and to be but slightly imbued with the love or the lore of mathematical science. We see this illustrated, every day, in the fact, that there is so very slight a shade of intellectual difference (if any) visible between many persons who have passed through the routine of the Common School, and others who have never seen the inside of such a seminary to partake of its *advantages*.

A gentleman once stepped into a Deaf and Dumb Asylum, in one of the Eastern States, to observe for himself the progress and acquirements of its pupils. For his gratification, the Superintendent brought forward a boy about 14 years of age, and giving him a pantomimic description of various natural objects, the boy readily wrote down, after him, their names, upon his slate.—"This is too easy," said the superintendent, "we must give him a harder task." He then, by gesture, endeavored to describe a mental quality—a pure abstraction. The boy wrote the word "Foresight." This was not precisely the idea, and a second effort was made to have him comprehend it. He then wrote "Prudence," which still was not the exact term. But at the third trial he caught the identical idea, and wrote the word "Circumspection." Now, how many boys, of this age, can be found, in our *ordinary* Common Schools, who would be at all able to discriminate the very slight shades of difference in the signification of these several terms? And how exceedingly imperfect must that mode of instruction be, which, with pupils blest with all the five senses, fails to accomplish equal results with the system, whose unfortunate subjects are deprived of two of the most important avenues of knowledge!

It is true that in some sections of our common country, as in New England and New York, far more improved systems of Common School education may be found, than those to which we have alluded. But if the latter do the most urgently need to be elevated to a higher standard, the former are still not perfect; and some of the ablest minds in the nation have been devoted to the detection of their defects, and the suggestion of the appropriate remedies. We need the Normal schools of Prussia to qualify and send abroad, to every corner of the land, teachers who will deal with our youthful population as with thinking intelligent beings. We need the munificent patronage of our National Legislature, imitating the example of some of the despotic monarchies of the Old World—not in their systems of laws and

government—but in that judicious, efficient and paternal solicitude, with which they endeavor to effect *the universal education of their people*, an object so much more congenial with the genius of our civil institutions than with theirs. We need a great revolution in public sentiment in relation to this subject, that the occupation of the school-master, which is now subjected to no slight degree of contempt in many parts of the country, may become the most honorable and honored, as it is one of the most important, avocations of human life. We need, in short, the immediate exertion of some mighty agency to wake up this whole people to a startling sense of the imminent danger to our civil and religious liberties, incurred in the fact that so many of our "citizen kings" are rising up without the intelligence to appreciate the surpassing excellencies of our civil institutions, and almost totally destitute of the qualifications necessary to successful self-government.

The domestication of Tropical plants

We have always admired Dr. Perrine's beautiful scheme for transferring and acclimating various valuable productions of the tropics to the main-land of our own hemisphere; and had heartily wished him the legislative encouragement so long delayed, but at last granted at the previous session of last Congress. It is rather an unfortunate circumstance for the immediate success of his enterprize, that the Florida war is still not terminated, and that he cannot, with safety transfer his plants to the main-land, at present.—In this emergency, he has concluded to locate the preparatory nursery on the island of Matacumba, which is four or five miles long, and at the last dates, had commenced clearing the ground for the reception of the many kinds of plants he had growing in boxes on the islet of Indian Key.

This scheme *may* eventuate in smoke; but it also *may* develope resources, for the Southern States, of immense moment to their agricultural and manufacturing interests, and furnish material of great value to the commerce of the whole country. Let us hope this latter may be the true and happy result.

Experiments on the Farm.

Some of our farmers have imbibed a strong prejudice against experimental farming; and it is certainly true that there would be but little wisdom in advising all tillers of the soil, indiscriminately, to embark upon a multitude of expensive, troublesome and doubtful experiments. Whilst nothing can be much more laudable in the wealthy proprietor of lands, than a liberal outlay of his means and expenditure of his time in scientific and well conducted experiments designed to improve the art and subserve the interests of agriculture, the folly of the small farmer would, on the other hand, be equally manifest, who should hazard his slender income, upon which his family may be dependant for their daily bread, in untried expedients of like expensive and doubtful character.

If, however, the farmer is never to deviate from the long trodden track of hereditary maxims and usages, where can we expect the much needed improvements in our agriculture to come from? In his great care to avoid one extreme, let him not run full tilt upon the other. If he is horrified at the term "experiment," let him not turn away from the watchword "improvement," which, assuredly, is no "uncertain sound."

There is, no doubt, "a happy medium" in this, as in most other things, which it is important to ascertain and adopt in our practice. This middle ground, we think, is to be found in those simple and yet valuable experiments which any cultivator may enter upon in the every-day routine of his farming operations, with very little, if any, expenditure of time, labor or money.

Every man, for instance, who has manures of different kinds to haul upon his grounds, can easily mark off the spots where the several kinds are applied, and note their different effects upon his crops. Thus, if he has horse litter, ashes and compost, he can ascertain their relative value to a particular crop, by applying them, side by side, on ground of the same quality, and planted or sown with the same grain or grass seeds. The discovery made in the result of such an experiment (which would not perhaps cost a half hour's loss of time) might be of immense advantage to the farmer in directing his future operations in this important branch of husbandry.

With just as little trouble he could satisfy himself with regard to the much mooted question of the right application of manures, whether they should be ploughed under immediately after hauling, or left upon the surface, or stirred in and mixt with the soil; also, at what period of the crop, and in what state, whether rotted or otherwise, their application is most beneficial. As this subject is so vitally important to the interest of every farmer, it is highly necessary that he should enter upon a fair experiment (which will cost him nothing) to ascertain the right and true system.

There is a great diversity of opinion in relation to the proper time to cut timber on the farm; and many facts tending to sustain contradictory theories on the subject, have been given to the agricultural world. The farmer (who is interested in this matter in no small degree) might (and ought to) cut a few trees, and work them up, at different periods of the year, that he may know what is truth and what fallacy in the various statements he may meet with on this point.

Those who are not yet convinced of the propriety of deep and frequent ploughings, should be so far influenced by the opinions of the many good farmers who advocate this system, as to give it a fair trial alongside land ploughed shallow, and watch its effects for two or three successive crops, as these effects will not usually be so visible at the first harvest as in succeeding crops.

Like experiments might be made to ascertain the best time to plough, to plant, to sow, to prune, to reap; and also the most advantageous modes of tilling all the cultivated crops. Nor need these experiments, whose results might be of the utmost consequence to his success and prosperity, cost the farmer a cent of money, nor interrupt, scarcely for a moment, the ordinary course of his farming operations. They need only a little additional care and attention, which would be amply compensated in the mere pleasure of these interesting observations.

Under the direction of a sound judgment and due discretion, it might also be altogether proper and advisable for the farmer to test, on a small scale, the feasibility of many practices of which he has no personal experience, and the adaptation of new plants and products to the soil he cultivates, which may seem to promise profit or advantage in the culture. On this point, some good thoughts may be found in an article on another page of this number, under the head of "Caution to readers."

But if it is the farmer's *interest* to engage in these cheap and useful experiments, it is still more urgently his *duty* to communicate their results for the benefit of others who may be engaged in like pursuits. Men were made to be useful to each other. The laws of our moral nature, the circumstances of our situation in life, our mutual relation with and dependance upon each other, all corroborate the equity and excellence of the Divine command, "Thou shalt love thy neighbor as thyself."

The farmer is not obeying this mandate, who, knowing that he has valuable facts in his possession, connected with his occupation, who might be useful to his fellow-farmers, yet, through indifference or diffidence, withholds them from the public eye. If ever our agriculture is advanced to a higher state of improvement than its present standard, this improvement will be necessarily connected with the collection and comparison of *facts* which may have been developed in the *practices* of our farming population. These facts may evince bad or good farming; but they *must* form the data by which to ascertain the defects, and upon which to base the improvements of our agriculture. We, therefore, most heartily concur in the sentiment of our valued correspondent "R.", in the last number of the Farmer: "Science and system," says he, "do not disparage and discord, when I say that facts plainly stated and adapted to the comprehension of the plainest men, are best suited to our agricultural journals."

Once more, then, we earnestly ask our subscribers to give us their experience, their suggestions, discoveries, practices and views, generally, in connexion with the interests of the cause, in the shape of communications to the Tennessee Farmer. There are few intelligent tillers of the soil who could not communicate some fact, or make some suggestion which might be useful to others. Will not our farmers throw off their reserve, and freely exchange their views and opinions and discuss the propriety of their several

modes of management in any and all the branches of the art?

We tender our hearty thanks to those who have hitherto contributed to our columns, hope they will continue their favors, and that many others will take a like interest in the promotion of the good work.

The Southern Cultivator.

We give place to the following article at the request of our cotemporary at Columbia; and request that our very amicable notice of this work, as we certainly intended it to be, does not turn out to be satisfactory. We think it scarcely fair to charge this result upon *our motives*, ironically styled "candid and disinterested;" for, as ours is, no doubt, by far the most unpopular side of the question, it might have been more plausible, as well as charitable, to have applied these epithets in truth and not in derision.

Without desiring or designing to enter into a formal controversy on this subject, which would not probably tend to any good result, we must, nevertheless, be permitted to say that the Cultivator's reasonings and quoted authorities, below, are hardly relevant. We have not controverted the opinion that the breeding of blood horses has been highly profitable to individuals and communities; or that the sports of the turf may have improved this noble animal *for certain purposes*. But as the concominant evils of horse-racing are *great and preponderating* (as the Cultivator almost, if not altogether, admits) we are compelled to adhere to our expressed belief that the turf can claim no natural, happy, or legitimate connexion whatever, with the noble art of Agriculture.

We have no wish to take back a word we have heretofore said in favor of the Southern Cultivator; but, dismissing this matter to be adjusted as conscience may happen to vary her verdicts at Columbia and Jonesborough, we renew the expression of our hearty wishes that our co-laborer may have a long and prosperous career of unmixed usefulness and deserved popularity.

From the Southern Cultivator.

THE BLOOD HORSE—AS CONNECTED WITH AGRICULTURE.

Our profoundest obligations are due to our cotemporary of the EAST TENNESSEE FARMER, for the following complimentary notice, dashed as it is with a little wholesome *censure*, which we doubt not, emanated from the most candid and disinterested motives.—Whilst we thus acknowlege our high sense of the favor done us, in a spirit of all kindness we would say to our cotemporary, "let us reason together."

From the Tennessee Farmer.

"We have received the first number of the 'Southern Cultivator, and Journal of Science and Improvement,' a new agricultural work to be published semi-monthly, at Columbia, in this State, by David Clayton, at $2 per annum. It is a very large and handsomely printed sheet; and exhibits in its editorship decided spirit and ability. Could the conductors be induced to soften down a little of the *sporting* feature, which is *rather* too prominent in the present number, we should have no fears whatever of its eminent usefulness and respectability. We are free to confess that we have never been able to perceive any connexion, but a most unnatural and disastrous one, between the sports of the turf and the legitimate interests of agriculture; and we should be very sincerely gratified if our friends at Columbia could be prevailed on to act upon a like opinion in the management of their highly promising work, the 'Southern *Cultivator*, and Journal of *Science* and *Improvement*.'"

Our cotemporary has, doubtless unintentionally, fallen into a slight error. We will explain. He looks upon the "*sporting* feature" in the Cultivator as being too prominent, and thinks there is no "connection" between the "*sports* of the turf and the legitimate interess, of agriculture;" therefore hopes we will "soften down" a little, &c. Verily, we had not supposed there was a "*sporting* feature" in our paper. There is certainly a distinction between *breeding* the blood horse, and *sporting* with him upon the turf—between the "legitimate interests" of the thorough stock-farmer and the professed sportsman. In our first number we especially remarked:

"At the outset, it is our wish to be fairly understood. Ours is not designed as a *sporting* journal, to *any* extent. But to the *breeders* of fine stock, we will say, for every thing exhibiting superiority of blood, of management, of crossing, of rearing, and of the improvement of the BLOOD HORSE, our columns shall not be looked to in vain."

Between the "legitimate interests of agriculture" and of the *stock-farmer*, there is unquestionably an intimate "connection." What then, is a stock-farmer? Is not he who rears horses—nay, fine horses—as completely a stock-farmer, as he who rears horned cattle, or hogs, or sheep, or mules? In Middle and West Tennessee and North Alabama, stock-farming is rapidly engrossing the attention of those who but recently made cotton the staple and almost exclusive commodity. Middle Tennessee alone has hundreds of thousands of dollars now invested in the blood horse. Nearly every farmer who turns his attention to the raising of stock, has a cross, or crosses, of this noble animal, and is therefore interested in his history, rearing, improvement, &c.—Shall we, then, pay no attention to this important branch of stock-farming? Further than to consult the best interests of those who are engaged in rearing and improving the blood horse we certainly do not mean to go.

Our sheet is of such ample size, that we think we can safely do this, and furnish in addition, as great (if not greater) an amount and variety of other agricultural matter, as is to be found in any other Western periodical.

But while we heartily concur in the opinion of our cotemporary, that ours should not become a *sporting* journal, we still feel constrained to dissent from his opinion, that there is *no* connection between the sports of the turf and the legitimate pursuits of agriculture. The sports of the turf are attended with so many unpropitious practices, and unfortunate results, growing out of those practices, that its good consequences upon the race and condition of the noble animal employed, are almost swallowed up and forgotten.—Their connection with the interests of agriculture is remote, but nevertheless, not of trifling moment. The sports of the turf, with all their "evils upon their heads," have produced great national as well as individual wealth, in both England and America, by their collateral results.

It is the deliberately expressed opinion of the Quarterly Journal of Agriculture, London, that: "*Farmers cannot breed saddle horses without the aid of the racer.*" The editor therefore very properly concludes, that "the degeneracy of the race horse, is an evil not alone affecting itself," but "greatly influencing the character of our saddle horses."

Says Mr. Thomas Hookham, the author of an excellent treatise on the "character of the English racer and saddle horse:"—"While it is admitted that the form of the saddle horse should be compact and powerful, this class has become so rare as to obtain in the market an extravagant price." This he attributes to the *degeneracy* of the *race horse*, and adds: "It is impossible to suppose, whilst the racer exercises its present influence over the character of our saddle horses, that these can be powerful and compact, while the former is the reverse."

Says the Farmers' Magazine, (high authority,) "A horse intended for *hunting*, should be strong and *well bred*—if *thorough bred*, so much the better." "IT IS TO THE SPIRIT OF EMULATION ON THE TURF THAT WE ARE INDEBTED FOR OUR PRIME HUNTERS AND HACKS."

Says the same authority—"*Speed* may be regarded as expressive of *strength*, since all animals remarkable for swiftness of progressive motion, are equally so for that tendonous or sinewy developement which constitutes the basis of extraordinary force." And again—"great speed can alone be acquired form g reat strength," &c.

The following remarks of the Journal of Agriculture, are worty of notice, and not entirely inapplicable to facts immediately around us;

"But as it is action, after all, that carries weight, the thorough bred horses of this day are not deficient in that respect; and there are more thorough bred hunters at this period, and have been more for the last thirty years, than we have ever known before. This improvement also qualifies the full bred horse for the road; whereas, formerly not one in a hundred were fit to ride off the turf. At present, a young lady on a bit of blood is an every-day sight; and a young gentleman on any thing else," "is become rather a rare one."

We could *pile up* a number of other, the best *Agricultural* authorities, to shew that the improved blood horse exerts an important influence upon the "legitimate interests of agriculture;" but we have not room, and that which is so obvious to the great stock-rearing community at large, we deem unneedful of further or higher authority.

I will hardly, we imagine, be questioned, that the sports of the turf greatly aid to develope and improve the powers of blood horse. Facts within the reach of every candid observer, attest this truth. ENGLAND has become the great nursery of the world, whence the noblest specimens of the horse are, or have been, found. She surpasses any other country in the antiquity, precision and distinction of her turf calendar. The Arabian horse—the horse of the Bedouin—surpasses not the blood horse of England in beauty—in speed and size it is greatly *inferior*. In bottom only, has the Arab the supposed superiority, arising, doubtless not from the *absence* of the sports of the turf. Why is the Virginia horse so much advanced in improvement, ahead of the stock of other portions of the Union, if it is not to be attributed to her long standing "sports of the turf."

But we have wandered from our original purpose. We only meant to say in the outset, that ours is *not a sporting* journal—but having ample room, we intend to make it, so far as our humble ability will permit, a useful vehicle of intelligence to the *breeders of fine horses*, independent of the usual quantity and variety of other important agricultural matter, found in all the best agricultural journals of the day. Indeed, we do not conceive that a journal taking a more contracted range than this, can embrace all the important interests, or meet the legitimate wants of agriculture, as it now exists in the South and West.

Our friend of the FARMER will confer on us a favor, by presenting this our essayed justification before his numerous and respectable readers.

THE AGRICULTURAL CONVENTION.

We hope it will not be forgotten that this body is to meet at Lebanon on the first Monday of next month. Middle Tennessee will, we doubt not, be well represented; but we have seen no indications that the other sections of the State are doing any thing towards the selection of delegates.—We sincerely hope that, as there is yet time, this duty will be attended to without delay, that every section of the State may be well represented.—Should this not be the case, however, we think it would not be an unfair construction to put upon such neglect, to consider the counties not represented, as having tacitly delegated their powers to the members actually assembled, who, we trust, will take the responsibility of deliberating

for the interests of the whole State, throughout its length and breadth. We wish the Convention the highest success in the promotion of its patriotic objects, and hope for the best results from its assemblage.

On the 27th of last month the Court House in Jonesborough was burnt to the ground, and with it several thousand copies of the Tennessee Farmer—our clerk's office having been kept in that building. He (our clerk) had mailed all the March number but about 400 copies, which, with the extra copies, were consumed, and of course a portion of our subscribers will not receive this (the March) number, until we can have it reprinted, which will be done and the deficiency supplied at as early a day as may be practicable.

From the Maine Farmer.

PLANTING LARGE AND SMALL POTATOES.

Considerable diversity of opinion exists among farmers in regard to planting potatoes, whether the seed, which is put into the ground, should be large or small, cut or uncut. Some are of opinion, that, in order to prevent the seed or variety from "running out," large potatoes should be used; others will contend that small pieces and small potatoes will afford as good a yield as the large ones, and that being the case, it is much more economical to use them. The late Dr. Parker, of Gardner, once informed us, that he never had but one variety of potatoes in his life, and that he invariably planted one large sized tuber in the hill, and thereby prevented any deterioration of the crop. It would seem from theory that this would be the result, because the potatoe which is planted must of necessity afford nutriment to the young plant until its roots have become sufficient large and extended to draw its support from the earth. The more nourishment there is on hand the greater the crop.

Accurate and careful experiment, however, does not establish this as an invariable result. The following statement is from a friend in a private letter—Mr. D. is an excellent farmer in the eastern part of the State, and a close observer, does not seem to warrant the plan of using only the large potatoes for seed. "I have been," says he, "trying for five years to prove that large potatoes are better than small ones, and have for that length of time kept two distinct breeds, selecting the largest of the one, and small ones of the other for seed each year, thinking that they would degenerate, but cannot yet perceive any difference. The small breed this year yielded as many and as large ones as the others."

"The potatoe crop with us has been this year a pretty, profitable one, although we had a small one, yet it turned out very well, as from an acre I got 260 bushels; of which I sold the merchantable, say about 200 bushels, for 70 cents per bushel."

After all, it would seem that much, if not the whole of the secret of obtaining a good crop, is the planting on a good soil and having a good season. The enormous yields that have been obtained the last year and the year before from the Rohan potatoe, is owing probably more to the good cultivation which was bestowed upon it, than to any thing so very superior in the potatoe itself. Our correspondent H. Prince, Esq. of Thomaston, demonstrated, not long since, by actual experiments, that the Rohan has not yielded in the hands of others more than the Quoddy blues did in his. But what we were going to observe was this —The Rohans, in every instance that we have seen were cut and each eye planted by itself.

Although many experiments have heretofore been, tried, in regard to this question, yet the facts are not generally known, if so well established as they ought to be. Our readers will find some experiments on this subject in Vols. 2d and 3d of the Maine Farmer, by "N." "Ploughboy," and "S. F. B" which throw much light upon it. By these experiments the cuttings are not so much behind the whole potatoes in yield as to make it much of an object to plant whole potatoes when seed is scarce.

Salvus Populi.—A very simple expedient will protect the inhabitants of regions exposed to bilious affections, such as intermittent and remittent fevers, from these desolating scourges. A cold infusion of the common dogwood (*carnus florida*) taken morning, noon and night, say a teacup-full of it at a time, will, in most cases, be found an effectual preventive. Chemical analysis has revealed in the dogwood a principle similar in nature and qualities to the quinine, though, perhaps, not so energetic. The writer of this communication had occasion once to employ the infusion of the dogwood in an obscure part of the country, where the quinine was rare and too costly for the poor; he found it to answer the purpose admirably. The light precaution, if adopted by families and their servants, might protect them from much suffering and exposure.—*Alexandria Gazette.*

Convenient Trellis for Grape Vines.—Set firmly in the ground strong stakes or small posts of cedar, chestnut, or other durable timber, 6 or 8 feet apart; drive nails in these 16 inches apart, nearly up to their head, ranging with each other horizontally from post to post; then take strong wire, the size of a large knitting needle, and extend it along the post, giving it a single wind around the nails, and it is done. If this wire is first run through some melted pitch, to shield it from the weather and prevent its rusting, it will be all the better. It is very easy fastening the vines to this trellis; the tendrils of the young shoots readily take hold of the wires; being perfectly open, a free circulation of air is admitted, favorable to the ripening of the fruit. It is light in its appearance, and with care will last many years. W. W. B.

Genesee Farmer.

COMMUNICATIONS.

THE METHOD OF PLANTING CORN—comes next to be considered.

If the field is level, I adopt the old plan of chequering it off with furrows crossing each other at right angles at the distance apart of four, or in thin land, four and a half feet. If the season happens to be wet, I steep the seed corn 20 or 30 hours in water, before planting. I never do this if the ground is dry. Where germination has begun in the grain, a dry soil, by absorbing from it its juices, retards its growth and often produces decay. Three or four grains are planted in a hill, and after the first ploughing one or two of the least vigorous plants are pulled up—leaving but two to grow. (In river bottoms, or very highly manured land, 4 or 5 grains are planted, and the three most thrifty plants are left in the hill.) When the field is free of stumps—is level and has been in small grain the preceding year, I cover the corn with a harrow—the team walks between two rows, and thus the harrow covers four in one round. Corn thus covered, can receive its first ploughing two weeks younger than when covered with a hoe. It has, besides, other advantages, which need not be enumerated. If the field is uneven—or its form oblong—as a narrow creek or river bottom, I furrow but one way, and drill the corn. The rows are the same distance apart, viz: four, or four and a half feet, and the corn planted 24 or 30 inches apart—leaving two stalks in a place. I find this better on many accounts than leaving one stalk by itself, and planting closer. If the hoe is used, I direct those who cover, always to place the foot on the hill after it is covered. It hastens the germinating process, and prevents, in some degree, the ravages of birds, squirrels, insects, &c.—Where a field has been broken up early in the winter, and the farmer finds not time, from a wet spring, or other causes, to plough it over again before planting, I would advise him to throw two or three furrows together in the same direction the first ploughing was done—then to chequer it off with a very shallow one-horse plough across those furrows. If the droppers will be careful to place the corn in the centre of each ridge, which is best done by going not across, but along and upon it. This will be found to be the very best plan of putting in corn. If the ground is hilly, and violent rains succeed the planting, the corn will not be washed up nor covered. It can, moreover, be much more conveniently, and easily and sooner ploughed. Indeed, the space between the ridges might be broken up immediately after planting—though I prefer that this operation should be done after the corn is ready for its first working. My first ploughing I always do deep, and as close as possible to the corn—the second shallower, and the third (and fourth, which corn planted before the 10th of April may sometimes need) still shallower and further from the corn. This working in old land—level, and free from stumps and rocks—I perform with the cultivator; especially if the field is intended to be put in small grain in the fall. The hoe is sometimes necessary after the first ploughing, but if land is properly broken up, properly planted, and properly ploughed, it is seldom needed afterwards. *Corn should never be hilled*, even with the plough. The old plan of hilling corn and cutting its roots, I consider murder in the first degree. It is putting upon the plant, at the very time, too, when it needs all its juices and vigor to form the ear, the necessity of throwing out new roots to keep the stalk from dying. This, I know, the old farmers consider a heresy. Actual experiment has convinced me, long since, of its correctness.

A practice prevails with some, of planting the oldest field on the farm first, and the richest and newest land last—allowing, as they say, a longer time for bringing forward and maturing the crop on the poorest land. I prefer to reverse the practice. If there is a poorer and older field than all the rest, I plant it the last. As there is least heat and vigor in its soil, I wait till the days have become long and the sun has reached its greatest power, so as to bring on vegetation rapidly. I have seen excellent corn grow and ripen on a field 20 years in cultivation, though planted the first and second day of June.

The season for sowing oats will be nearly over before these remarks can reach you, but I will briefly detail my views about that grain. I have not found oats to be an exhausting crop—on the other hand, I am reclaiming worn out land with them. Oats stubble makes a good fallow for wheat. It is the best grain for stock of all kinds

—horses, hogs, sheep, and especially milch cows—cut oats moistened with water and mixed with wheat bran or corn meal, constitutes the very best and cheapest food for them. They yield, after being fed upon it the richest milk, and thrive upon it. A pasture of an oats stubble field is better than that of other small grain. The rag-weed, and other such growths, are eradicated or smothered by the oats, and their offensive flavor is thus not imparted to the milk.

I put the oats in with small ploughs—whether in stalk or other land. If the field is rich, I sow them thick and early—if the land is poor, I sow as late as the last of April, and am less liberal with the seed. Where it stands thin on the ground, or the straw is short the cradlers are directed to leave it. The grain is all saved by the stock that pasture the field, and the straw is some protection to the soil against the injuries from the hoof and from the weather, and contributes something to future cropping.

You see my practice is not in accordance with the suggestions of some that tilled lands should not be pastured. I have not found pasturing injurious to the land. I can find no other way of keeping my fields clean, and I know it to be worth a great deal to my stock. ☞I pasture winter and summer, always observing this one restriction—never to allow a hoof to go on it while the ground is wet. Immediately after a rain, the stock is all turned out of the fields, and the gates not allowed to be opened till the top of the ground becomes dry and firm. R.

TOULON, FEB'Y 25th, 1839.

Editor of the Tennessee Farmer:

SIR—I am much pleased with the spirit of improvement in the Farmer of January. Threshing machines upon an improved plan were necessary, and will prove highly beneficial to the farmer; and, indeed, be one means of introducing the culture of small grain among us, instead of cotton—a plant so uncongenial to our soil and climate. I have recently imported one from Virginia, which has cost me nearly $100—the cost at the shop for the drum being, in that country, $65. This will not do for the *farmer*. We (I think, can do better at home. I should like to procure "Cheek's Straw-cutter and Corn-sheller" mentioned by "Parvus Agricola."

I perceive a correspondent wishes to procure the "Flour corn," and you wish a few grains enclosed and forwarded for him. As you mention, I know not whether I have the genuine "Flour corn." I send you, however, a few grains of such as I have, for the benefit of your correspondent.

In a communication, made about 12 months ago, I mentioned that I was using sulphur plentifully as a preventive of the bloody murrain in cattle. I have lost only one since I commenced the sulphur, and that in a few days after I commenced giving it. I should say, however, that though I used it plentifully for a time, I have recently, say for 5 or 6 months, been compelled to dispense with it, having failed to procure the necessary supply. Now, did the sulphur stop the disease or not

HAYWOOD.

We received, with the above, a few grains of the Flour corn, for which we beg our correspondent to accept our thanks [ED. TEN. FAR.

SPRING WHEAT.

You requested those of your subscribers who received donations of small parcels of Italian Spring Wheat, to communicate to your columns the result of their experiments. In compliance with this request, I subjoin the result and proceeds of the tin cup full which I received and sowed.—I put it in the ground about 1st April, which, I presume, is too late for a fair trial, having ploughed and harrowed the ground. The ground, however, was obstinately cloddy—and remained so. The wheat, however, came up regularly, and grew up thriftily. I cut it about the 10th day of July, and put it carefully under cover. The heads were small, and I thought would not yield very largely; but to my surprise, when I prepared to thresh it out, the chickens had eaten it all up.

Jefferson county, Ten., April 4 1839. D.

The above will be regarded by some *as rather* an abortive attempt to be witty; but (without venturing an opinion on a point so delicate) it may still serve to illustrate a principle and to point a moral. Although our correspondent seems to be so good-humored about his misfortune, it is not a very small matter that he has lost an opportunity of adding his testimony in relation to the propriety of introducing the Spring wheat into our existing systems of cultivation—a question of no mean importance—involving, as it does, the possibility of great loss from the too rash adoption of an untried expedient, on the one hand, and the probability of an important and profitable addition to our staples, on the other. Illustrating, too, the propriety of care and attention in little matters, and the necessity of promptitude in doing things at the right time, we hope our correspondent will so far profit by the lesson taught him, as to take especial care that he does not carry this remissness into the larger operations of his farm, to neutralize his labors, swallow up his profits, and reduce his affairs to confusion irretrievable.

[ED. TEN. FARMER.

From the Genesee Farmer

CAUTION TO READERS.

We have frequently heard an expression of disappointment from readers of agricultural publications, that many of the recommendations they contain are of little practical value; and that experiments detailed as remarkably successful, prove on repetition, partial or entire failures. This is owing to several causes. A very common one is, that the experiments are not allowed a fair trial. An important part of the operation is perhaps overlooked or omitted, and disappointment is the result. This is sometimes owing to a want of precision in the writer, but perhaps more frequently to carelessness in the reader. A neighbor, who had a fine piece of sandy ground for his garden, but which had not been much enriched with manure, had read or heard much of the benefit of ashes as manure. He accordingly applied unleached ashes in large quantities, throwing down each load in a heap and spreading it afterwards, but still leaving a layer two or three inches thick where each heap had stood. This was but very imperfectly mixed with the soil. As an inevitable consequence, the crop on these spots was nearly destroyed, and ashes was denounced. Another farmer had read much of the facility of raising, and the great profits and advantages of ruta baga. But the writers who detailed the successful experiments, did not mention that they had a light or very rich soil to work upon. The experiment was repeated upon a wet clay, and failed as a matter of course. Another has a good soil, but he suffered the crop to be overrun with weeds in its early stage of growth; the crop, as a consequence, was greatly diminished in amount, and the labor increased four fold. The ruta baga was considered a very unprofitable crop. Another who succeeded in raising a good crop, considered it as of little value, because he never applied it to the proper use.

It is highly necessary that accuracy of plan and of operation be made use of in the culture of new crops or in new operations, and that nothing be overlooked. It is also very desirable that there be as great accuracy of detail in describing experiments as practicable. Difference of soil or of climate sometimes materially affects the success of a crop; hence before attempting an untried experiment, it would be of great advantage to know precisely the nature and difference of soils, and a comparison of climates made from accurate observations. Great looseness of expression prevails in describing soils. Thus, it is general to give nothing more definite than the expressions "clayey" or "sandy," "clayey loam" or "sandy loam," "rich mould" or "heavy clay," as the case may be. But what would be termed sandy in one region would be considered clayey in another; we have known land to be described as sandy which in fact contained so much clay as to be incapable of being worked without causing baking except in dry weather. Yet it was the lightest soil to be found in that section of the country. The most effectual remedy for such want of precision, would be analysis of soils; but this could be properly performed by a few only. The degree of tenacity exhibited by worked specimens, would probably in this case, be a good substitute. A more *general knowledge* of the different soils of the country would also be advantageous.

In all newly recommended experiments, it is absolutely necessary that they be tested by judgment and experience before trial. Many requisites for success, yet unknown to be such, almost always exist; and what is advantageous and profitable in one place may not be so in another. But *limited* experiments are cheap, the greatest benefits sometimes result from them, the judgment is improved by them, and common sense will generally dictate whether new recommendations are or are not worthy of trial. J. J. T.

From the Cultivator.

ECONOMY IN KEEPING HORSES.

Roberts, in his Agricultural Economy, maintains that one pair of horses, well kept, are a sufficient team to work a fifty acre farm, and to work it well, under the alternating system. It has been proved, he says, that a team going at the respective rates of a mile and a half and two miles an hour, will plough in nine hours as follows:

Width of furrow.	Rates per hour.	A.	R.	P.
Eight inches,	One mile and a half,	1	0	0
Nine inches,	ditto,	1	0	20
Eight inches,	Two miles,	1	1	10
Nine inches,	ditto,	1	2	0

Three things requires attention from every man who wishes to keep horses well and economically:

1. The food must be natural for them;

2. The quantity of food requisite to keep their condition equal to their work;

3. The best manner of giving their food, with the view of its being speedily eaten, so that they may lie down to rest.

The natural food for the horse, says our author, is corn, hay and grass; but that under artificial management, there may be advantageously substituted for natural food, or conjoined with it, potatoes, parsnips, carrots, turnips and mangold wurtzel, together with straw, bean (and corn) stalks, pea haulm, vetches, clover and other cultivated grasses, cut green.

Hay is sufficient to keep a horse to look at; but corn is indispensable to enable him to stand hard work. A horse requires thirty pounds of dry food a day, of which a part must be corn or its equivalent; to those which work, one pound of good oats is equal in nutriment to three pounds of good hay. Heavy oats are worth more, pound for pound, than light oats, as will be seen by the following scale:

Weight per bushel.	Produce in meal.	Produce in bran.
42 lbs.	25 lbs. 2 oz.	16 lbs. 14 oz.
40 lbs.	23 lbs. 6 oz.	16 lbs. 10 oz.
38 lbs.	21 lbs. 12 oz.	16 lbs. 4 oz.
36 lbs.	20 lbs. 3 oz.	15 lbs. 13 oz.
34 lbs.	18 lbs. 11 oz.	15 lbs. 5 oz.
32 lbs.	17 lbs. 5 oz.	14 lbs. 11 oz.
30 lbs.	16 lbs. 1 oz.	13 lbs. 15 oz.

In general, the different kinds of grain are nutricious in proportion to their weight; while two pounds of green food or roots are considered equal to one of dry.

"Whatever fodder be used," says Mr. Roberts, "it should be supplied in such a form as to be eat forth-

with, that the poor animals should enjoy refreshing rest; to secure this, the fodder *should be cut or crushed*, and placed in a MANGER"—not a rack. "When the respective feeds will have been consumed, every horse will lie down to rest; his hunger being satisfied, there will be no temptation to keeping him standing for hours as would be the case, were his rack stuffed with hay, according to the too general custom of farmers. The nutriment contained in every kind of grain depends upon its weight." It is to be remarked, that concentrated food, as grain, will not do alone, there must be something to increase the bulk, to impart the stimulous of distension, before the functions of digestion can be carried on in perfection. Horses, therefore, and even fattening animals, which are fed high with grain, require cut hay, or even straw, for this purpose, independent of the nutriment they afford.

"When the quantity of hay supplied as food for horses," says Mr. R., "has been increased, and the quantity of oats diminished, it has been found that the animals though they appear to improve, as to the fatness of their looks, were nevertheless not so able to stand hard work; and, on the contrary, when the corn has been increased and the hay diminished, it has been found that though the animals might, as to appearance, be leaner, yet that they were stronger, more equal to hard labor, and in better working condition."

MANAGEMENT OF BEES.

Early in the spring, from deficiency in the stock of winter honey, the bees of one hive are often found to rob those of another. To prevent this, I know of no better way than to make the entry hole of the hive that contains the most honey so small that it will barely admit them to go in and out. But the greatest object which could claim the attention of every one who has the charge of bees, is to prevent their destruction by worms. Perhaps two-thirds of the bees on the Island have within a few years been destroyed by the insect called the miller. It enters the hive and lays eggs, which soon produce worms in such numbers as to destroy the bees or drive them from the hives. To prevent the access of worms, the hives should be perfectly tight, and have but one hole at the lower edge of the hive; the continual passing of the bees will prevent them. But the most sure way of keeping them out is to have a well made hive, to act very level on a board which shall project out in front of the hive seven inches, to have a channel or groove about ten inches long, and two wide, and half an inch deep cut in this board, and then have a board about four inches wide nailed over the groove outside of the hive. The bees will enter the hive by this groove—the entry hole being at such a distance (four inches) from the hive, no kind of insect will ever enter. I have observed that bees which deposit their honey in trees very generally have worms among them, if the hole is large, or if there are two or three small ones. But when the hole has been small I have always found the honey pure and free from worms. Besides this great advantage, the bees are less annoyed by the dust and leaves blowing in during dry weather, and rain beating in during heavy storms. All kinds of dirt are very offensive to bees. The hives should be of new clean boards. To have them quite clean is much better than to rub them with sugar or salt and water. I have known bees to forsake hives which once contained fish or some other oily substance. The empty hives, during winter, should be in some place where they can be kept from dirt, particularly from mice and rats. When bees swarm and light on the limbs of trees, they should not be shaken off violently, but the hive should be put near them, or the limbs sawed off.

The next object of attention is to take up the honey without destroying the bees.

The old method of killing the bees to get the honey, is a very bad one—it can be easily avoided about the first of July, or as soon as the bees begin to lie idle in the front of the hive; take a hive of the same dimensions as the one they are in, and bore in the top of it as many holes as you can, about an inch in diameter—raise (near the dusk of the evening,) the hive that contains the bees—put it over the one that has the holes. The bees will immediately descended into the lower one, and fill it with honey. If the hive is fixed according to the above directions, they will go out and enter the same hole that they did when filling the first one; and thus they will not be disturbed in the least. But when the hole is made in the side of the hive itself, you are under the necessity of stopping it up, and making them pass through one with which they have not been acquainted. In the fall after the bees have done collecting honey, take off the top hive, and turn it bottom upwards, place the edge of it near the entry hole, and by thumping it a little the bees will immediately leave it and enter the other.—Take a piece of board of the proper size and screw it in over the holes. By this method you get a hive full of honey, and a sufficiency in the other for the bees to live on during the winter.—Unless the bees have a second hive to fill, they are in a good season almost entirely idle after July, for want of room to store their honey

By this method of management, bees are rendered very profitable. Two years ago I bought a swarm of bees on a limb of a tree for $3,25.—From this one I have 5 others, which independently of the honey they have produced, I value at 28 dollars—and should the three following seasons prove favorable, I shall from this one hive, have bees enough to support my family. From one hive of bees I can generally get two others every year. At a moderate calculation, I shall have in 3 years 60 hives, and should the season be favorable, I shall have one hundred. When my number of hives is sufficiently increased, each one will every season produce honey to the amount of seven and a half dollars.—*Long Island Journal of Philosophy*

Ink spots, on the pages of a book may, if fresh, be entirely removed by a solulion of oxalic acid, washing it afterwards with water. Old ink spots may be partially removed. As oxalic acid is a poison, it must be used carefully.

To close cracks in stoves through which fire or smoke penetrates, apply, while the stove is hot or cold, a mixture of common salt and fresh wood ashes made into paste with water.—*Gen. Farmer.*

ulture of Beet Sugar.

The following article contains information so valuable on the subject of which it treats, that it may well merit a place in our Journal and an attentive perusal by all our readers. The author is a native of Bavaria and by his extensive practical and scientific information well qualified for the task he has assumed. This document is said to comprize the most important and latest European improvements in the manufacture of Beet Sugar. ED. TEN. FARM

To the honorable the Senate and House of Representatives of the United States of America in Congress Assembled.

The memorial of CHARLES LEWIS FLEISCHMANN, a naturalized citizen of the United States.

Respectfully Represents:

The existence of crystallizable sugar in the beet-root was discovered by the German chemist Markgraf, in the year 1747. He communicated the results of his experiments to the royal Academy of Sciences at Berlin; pointed out the importance which his discovery would have on Agriculture and industry, and endeavored to bring it into practice; but at that time, the price of sugar being moderate, chemistry not advanced to modify the complicated operations, and the spirit of enterprise not sufficiently awakened to make it an object of speculation, the discovery remained without being put into practical use until the year 1796, (forty-nine years afterwards,) when Achard, another Prussian chemist, repeated the experiments of Markgraf, modified them, and erected the first manufactory at Kunnern in Germany.

The results of Achard's manipulation created great sensation all over Europe, particularly in France, where the chemists re-examined the process of Achard, simplified it, and made it more practicable and profitable in its results.

These simplified manipulations were adopted by enthusiastic speculators, full of sanguine expectations, peculiar to the French character; but the results were not satisfactory, as the immensely large and costly manufactories were partly established in places where the soil was not sufficiently productive, where fuel was scarce and high, the market distant, and the operations directed by men, who had not the least idea of agriculture—a science necessarily connected with the manufacture of the beet-sugar—nor practical knowledge of an entirely new process, and a most imperfect apparatus. The consequence of these obstacles was a complete failure, which induced the opinion over the whole world, that the extraction of sugar from the beet, though correct in theory, was impracticable on a large scale.

This, however, was not the opinion of enlightened men; they saw the causes of failure in their true light, and endeavored to overcome and to correct them.—The political events of 1812 accelerated the developement of this new branch of industry; the French government, in want of a substitute for the colonial sugar, encouraged the manufacture of the beet-sugar, by establishing four large manufactories, and teaching the best method of extraction.

In 1814, these manufactories were in full operation and flourishing, when the peace of Europe allowed the importation of the colonial sugar into France, causing a destructive shock to the manufacturers of indigenous sugar, which none but immense fortunes could endure and created, again, the belief that the manufacture of the beet-sugar could never come in competition with the colonial.

This might have been the final catastrophe of the manufacture of the beet-sugar, had it not been for the efforts made to revive it again by some wealthy and enlightened manufacturers.

These efforts, however, did not arise entirely from the patriotic desire to promote the welfare of France, as now pretended,) but partly to prevent the loss of immense capitals invested in buildings, apparatus, farms, &c. Moreover, the manufacturers knew there was yet five or six per cent. more to gain by an improved operation.

This it was that gave a new start to this favorite branch of industry; and chemistry, particularly adapted to improve the art and manufacture, assisted in simplifying the process, and discovered the mode of *reviving* animal charcoal so as to admit of its being repeatedly used, while the improved apparatus helped to economize labor and fuel; and all this, combined with a wonderful perseverance, reduced the expenses of the fabrication, and enabled the old establishments to continue in operation, even when the price of colonial sugar was very low. This created confidence and a rapid increase of establishments.

The cultivation of the beet has had the most beneficial influence on agriculture; as in the last year, more than eighty thousand acres of land were planted in beet producing about one million of tons of this root; and, as generally rotations of four crops are adopted, it brought at least three million two hundred thousand acres of land under the highest cultivation.

The following table shows the rapid increase of the manufactories, and the quantity produced in France.

		Beet-sugar.
In 1828 there were	103	manufactories, which produced	100,000 cwt.
1831	200		220,000
1836	543		950,000
1837	600		1,000,000

Or 20,000 tons of beet-sugar.

The manufacture of indigenous sugar did not affect the demand for colonial sugar, as the consumption continually increased until the year 1836, as appears by a table from the Journal of Commerce of 1836, viz:

In	Consump. of colon. sugar.	Con. of beet-sugar.
1825	61,255,232 fr.	4,000,000 fr.
1831	67,542,792	10,000,000
1832	62,669,638	15,000,000
1835	69,000,000	30,000,000

But, in the year 1836, France imported only 75,120 tons of colonial sugar—a diminution of 15,630 tons in one year; a *quantum* too large not to alarm the proprietors of the sugar plantations in the French colonies and particularly in Martinique, who looked, some

years ago, with an ironical smile at the beet-sugar manufacturer. They, who have ridiculed and caricatured every improvement in this branch of industry, felt themselves forced to send, in 1835, Baron de Cools, with the following proposition of the French government, viz: demanding—

1. Diminution of duties upon French colonial sugar of 50 per cent., and a proportional reduction of duties upon the foreign colonial sugar.

2. The permission to export the colonial sugar direct to a foreign market.

3. A careful examination and investigation how the French colonial and beet-sugar manufactories can be equally taxed.

The latest news from France states that the Government came, finally, to the conclusion of an equal taxation upon the indigenous and colonial sugar, as may be seen from the following extract from a New York paper, (Morning Courier and New York Enquirer of December 18, 1838.) dated

[By the Ville de Lyons]

Paris, October 30, 1838.

"A branch of industry, (the offspring of necessity under the empire,) the production of sugar from beet-root, has engaged much attention in France, and has been carried on with success, and to a vast extent—The natural consequence has been, that sugar, the produce of the French colonies, which is burdened with a very large duty on importation into France *was beaten out of the market.* Appeals were made by the *suffering colonists* to the government, repeatedly, representing the distress into which they had fallen from this circumstance; the irremediable ruin that would necessarily fall upon them if the present tariff were maintained, and soliciting relief. After a variety of expeditions to evade a decision on the point, the government has just come to the resolution of proposing to the chambers, (which are to meet on the 24th December,) to reduce the import duty on colonial sugar by 8 1-4 francs per cwt., which, with a precisely similar excise duty levied on the beet-root, or home-grown sugar, will, they say, suffice to re-open the market to the colonies."

Such is the state and results of the indigenous sugar manufacture in France.

What is the progress of this branch of industry in the other parts of Europe?

England, (the mother of the colonies,) which was very much prejudiced against the manufacture of indigenous sugar, seems to see, in the adoption of it, the only means of improving the physical and moral condition of men in her colonies; and she has already overcome some of her prejudices, and has begun to establish manufactories. The following article taken from the London Mechanics' Magazine of 1836, (No. 169,) will show its progress:

"A refinery of sugar from the beet-root is being erected at Thames Bank, Chelsea, which, it is expected, will be in operation in about six weeks. In the vicinity of the metropolis, during the past summer, a great many acres of land have been put into cultivation with the root, at Wandsworth and other places. The machinery will be principally on the plains of the vacuum-pans, and *a pure refined sugar* will be produced from the *juice* by the *first process of evaporation*, after it has simply undergone the process of discolorization. Another part of the premises is appropriated to the manufacture of coarse brown paper from the refuse, for which it is extensively used in France. In case the government do not interfere, and, by rendering the product excesable, retard or prohibit its manufacture, several individuals have it in contemplation to establish refineries in different parts of the kingdom for purifying sugar, which may be produced in agricultural districts for domestic or foreign use. A refinery has lately been established at Belfast, in the vicinity of which town upwards of two hundred acres of land have been put in cultivation with the beet-root for the manufacture of sugar.

Russia, which adopts every useful improvement in manufacture, has, in the southern departments, large manufactories of beet-sugar, by which she expects to furnish some of the Asiatic markets with this article. So have Bohemia, Hungary, Austria, and Switzerland large beet-sugar manufactories, in the most flourishing condition.

The Germans, though the discovers of the crystallizable sugar in the beet-root, until 1836 made very little progress in its manufacture. This is to be ascribed as well to the continual war with France, which checked every improvement, as to the uncertainty of the business itself. The Germans, well aware and well informed of every improvement made abroad, never found it sufficiently lucrative to embark in it; but it seems that this nation which has given the world so many great and important discoveries, was destined to bring its own discovery of the extraction of sugar from the beet to perfection. This was accomplished by Mr. Schuetzenbach, of the Grand Duchy of Baden. Schuetzenbach re-examined carefully Markgraff's experiments, and found that the first experiment of this great chemist made eighty-nine years ago, is the best method, when modified, to produce, with less labor and expense, eight pounds of white refined sugar out of 100 pounds of the raw beet-root. This improvement it is, which will, in a short space of time, exclude all the colonial sugar from the European market, as well as our own. This improvement, also, will change the condition of millions of men in the colonies.

The opinion and judgment of a nation, jealous of every discovery or improvement made in other countries, and especially in this branch of industry, in which it has sacrificed millions of francs for its perfection, will serve as a proof of the importance of the new improvement. These new discoveries are detailed in an article which appeared in the *Journal des Debates Politiquei et Literaries*, in Paris, dated the 16th July, 1838, by Michel Chevalier, viz:

"It would seem that the spirit which was manifested in the days of the revolution, has been transferred from the political arena, and is exerting itself in that of industry. At this time, the manufacture of sugar from beets is on the point of undergoing a metamorphosis which, as it appears, will change all the condition of its existence and extend its influence, not only to the consumption, but also to the production of that article.

"Until now, a series of operations has been applied

to the extracting of sugar from the beet, which, tho' simple enough in appearance, are in reality complicated and delicate; which demand not only a great number of intelligent and skilful workmen, but also require considerable material to be operated upon; and which, again, consume costly articles, such as milk, blood, animal charcoal, &c.

"In the former process the sugar beet was scraped; the pulp pressed by means of an hydraulic press.—The juice so obtained, underwent defecation, or the separation of the albuminous and mucilaginous elements, and then the clarification and evaporation.—Once concentrated, the sirup underwent crystallization, which furnished the raw sugar; and this then had to be refined before it could be admitted on our tables.

"Since its origin, the process of extracting the sugar has always been the main point, but it has been modified and improved in the details; so much so, that our manufacturers, who were ruining themselves when sugar was at six francs the pound, are becoming rich at the low price of 20 sous per pound. At this time, the scraping, pressing, defecation clarifying and evaporating were attended with difficulties, which it required a great length of time to subdue. The loss in manufacturing was enormous, as only from three to five parts of sugar were obtained from a hundred pounds of beets, instead of ten pounds, which are contained in the root.

"With the assistance of chemical analysis, it was ascertained that this evil proceeded from the presence of a certain quantity of acid, of divers coloring, mucilaginous and gelatinous matters, suspended in the juice. The presence of these mischievous substances injures the sugar, prevents it from crystalizing, sometimes destroys it, and causes it to yield only poor molasses. To prevent these injurious effects, different agents have been used, which were found more or less efficacious. Apparatus was constructed, which eccelerated the manufacture, and diminished the time during which the sugar in contact with these injurious substances; but the inquiry was never made whether it were possible to separate the sugar from these foreign bodies, or at least to neutralize or paralyze their destructive power, before the juice is extracted.

"The new process, first alluded to, was discovered in the grand dutchy of Baden, by Mr. Schuetzenbach, of Carlsruhe. The experiments introduced a method of manufacturing the sugar, which was adopted by several manufacturers on the right bank of the Rhine, and which is already in vigorous operation.

"Like all ideas which are destined to accomplish revolutions in manufactures, as well as in politics, that which serves as the basis to the new proces is simple. The operation of drying the beets immediately after they are taken from the field, is now the first step in the process. By this operation, the mucilaginous matter, which is an integral part of the beet, loses the property of dissolving in water; this drying stops also the fermentation which takes place during the preservation of the beets in cellars or in the heap, and likewise prevents the formation of acids, which were created at the expense of the sugar, and which embarrassed the manufacture of beet-sugar.

"When the beets are once dried, the sugar is easily obtained by mixing the with a small quantity of water, which produces a solution of sugar and a very small proportion of other bodies, and which by the process of evaporation, gives at once a good product, which can be asily refined.

"In a word, the elementary operation of the desiccation acts with the power of exorcism; it drives from the juice all injurious substances which were the former cause of evil in this manufacture.

"This fact being once understood, and duly verified by experiments on a large scale, it was then important to bring it to perfection by an easy practical manipulation. This is what the '*Societe d' Encouragement*' is about to undertake, and that with every chance of complete success. This is already much more than mere expectation, because the problems which it has proposed are already more than half solved, and the entire solution of them is scarcely a matter of doubt: so that the manufacture of the sugar from beets is about to be built on a new basis.

"The *Societe d' Encouragement* have offered the following prizes for the promotion of this manufacture:

"1. One of 4000 francs for the best process for the desiccation of the beets.

"2. One of 4000 francs for the best treatment of the dried beet for the extraction of the raw sugar.

"3. One of 3,000 francs for the conversion of the raw into refined sugar, without taking it out of the mould.

"4. One of 3,000 francs for an analysis of the beet root, &c.

"5. One of 3,000 francs for the invention of a saccharometer, which should be constructed so as to be easily applied, and to have the property of showing immediately the quantity of crystalizable sugar contained in the fluid under trial. A contrivance of this kind, which would be a sure guide for the farmer, and for the workmen in manufactories, indicating to the former the proper time to collect his crop of beets, and to the latter, how to manage his operations, would be of immense value.

When these five prizes are gained, the theoretical and practical renovation of the manufacture of beet-sugar will be radically accomplished in all its forms.

"To the question, *will* this be effected? it may be safely answered that existing facts scarcely allow of the expression of a doubt that such will be the case.

"The promblem of the complete and rapid desiccation by an economical process has presented very formidable difficulties. *This drying may be denominated the* CORNER STONE *of the new system*; but this problem is far from being insolvable; on the contrary it ought to be regarded as solved.

"In one of the last sessions of the *Societe d' Encouragement*, Mr. Bey rand, of Marseilles, presented beets cut in slices, which were dried in eight minutes by the combined action of pressure and heat, effected by two cylinders, heated to one hundred degrees by

steam. This result will appear more prodigious when we consider that 100 parts of beets contain 84 parts of water.

"The beets, prepared after Beyrand's method, preserve all their sweetness. Mr. Schuetzenbach, of Baden, dries the beets by a slow process, probably less perfect than Mr. Beyrand's method; but the result is already excellent, and favors the application on a large scale. In the manufacture of Mr. Schuetzenbach, the beets are cut in small slices, and as soon as they came in contact with the air they bend and roll up, and lose the property of sticking together, which gives the hot air of the kiln, (to which they are brought immediately after they are cut,) a free circulation in all directions round them. The temperature of these kilns is from 30 to 40 degrees Reaumur, (from 99.6 to 122 degrees Fahrenheit.)

"Mr. Schuetzenbach's apparatus of desiccation is very economical. The machine for cutting the beets bosts only from 400 to 500 francs, and half a horse power is sufficient to put it in operation. Such a machine, when at work every day for three months will cut one million killogrammes of beets (about 1000 tons) which would be a sufficient supply for a large manufactory. A kiln, about 10 feet by 9, and 9 feet high, dries, in 24 hours, 3000 pounds of beets, and consumes only 240 pounds of charcoal. Three such kilns would be sufficient to dry all the beets cut by one machine during 12 hours.

"In the manufactory of Mr. Schuetzenbach, the dry beets are reduced to a coarse powder, sprinkled over with lime, and stored away in casks. When the sugar is to be extracted, this coarse powder is mixed with water, which produces a liquor marking 21 degrees on the saccharometer; and when evaporated with Roth's apparatus, this liquor yields, without any other preparation at the first chrystalization, a raw sugar, known in commerce by the name of *bonne quatrieme*, which after a second crystalization, becomes a *bonne commune*. The advantage of this new method is such, that the beets raised in Esslingen, in Germany in 1837, (less rich in sugar than the preceeding year) yielded more than eight per cent of chrystallizable sugar, instead of five, which was the highest product by the old process; and in the proportion as the gain on sugar increases, the expense decreases; so much so, that eight pounds now obtained, costs less than formerly four or five from 100 pounds of beets.

"Two important points are then obtained: first how to dry the beet; and second how to extract the sugar from it.

"To refine the raw sugar, without taking it out from the moulds in which the syrup was placed to crystalize, and which always causes the loss of a considerable quantity of sugar, appears to be a question equally advanced. Recent experiments on a large scale, show that raw sugar washed in moulds, with pressure, gives, in the short space of three days, a perfect refined article, which formerly required from two to theee weeks to effect.

"In regard to the analysis of the beet in its diverse states of maturity, nothing has yet been attempted; but this is a task which chemists can at any time accomplish, and the prize held out for it will induce many a chemist to undertake it; and it will not be long before we know to what extent the constituent parts of the sugar beet develope themselves simultaneously, and which is the most favorable moment for collecting them for the manufacture of sugar.

"In regard to an exact saccharometer, of a simple and practical construction, with the aid of which all manufacturers can ascertain, to a fiftieth part, the richness of the saccharine matter in beets, and all other substances containing crystallizable sugar, the learned researches of a young chemist, M. Peligot, promises great success. Lime and barytes, have the property to combine with crystallizable sugar, and form together an insoluble composition, in which, nevertheless, the sugar does not alter, and is easily separated from it. In bringing this fact to a simple mechanical operation, no doubt is left that the quantity of sugar contained in beet sirup can be ascertained with the greatest nicety.

"The proplems proposed by the *Societe d' Encouragement* are at this time almost solved. It does not any longer propose to discover a new method, but only to perfect the processes which are already verified by an application on a large scale. Among the advantages which are derived from the separation of the manufacture of the beet-sugar, is the extension of the culture of the beet root; because it will be easy for every farmer to send his dry product to any market, far or near, as the weight of the raw beet is reduced, by the process of desiccation, no less than one sixth part. The beet can now be raised anywhere, however distant from the manufactory; and reciprocally, it is possible to establish manufactories in all parts of France, to concentrate them in places where fuel is plenty and at low prices; whereas, at present, the manufacture is only possible close to a field, fertile enough to produce beets. Another important fact: 1,000 pounds of beets contain a hundred pounds of sugar. The price of beets is about 12 francs; the expense of drying and extracting the sugar would not exceed 10 francs (this is sufficiently proved by experiments;) making the total amount 22 francs. Suppose that one tenth of the sugar is lost, the manufacturer would have 90 pounds of sugar for 22 francs, or 100 pounds for less than 25 francs. Allowing for small expenses, &c., 5% per cent, the sugar (the refined sugar of this country) could be delivered to the consumer for 38 centimes, (or 7 1-2 cts.) per pound.

"This will create a revolution in the consumption of sugar, as well as in the division of the branches of industry, over the whole globe; then instead of importing sugar from the southern regions it will be left for us to furnish them.

"MICHEL CHEVALIER."

Another proof of the practicability and great advantage of this improvement, is the enthusiasm with which it was adopted and put into operation by the Germans themselves, who are generally very careful and prudent in all their speculations. They have already established extensive manufactories on the Rhine.

[TO BE CONTINUED.]

ITEMS IN DOMESTIC & RURAL ECONOMY

India rubber is an excellent substitute for leather in constructing valves for pumps.

To prepare husks for matrasses, strip the husks from the ear, cut off the "*stub shuck*" ends with a pair of shears, and draw them repeatedly through a hatchel, and they will be fit for use.

Every gate post on the farm should have a small hole bored into it, to be filled up with grease and plugged up, to grease the latches and hinges. Want of grease is often observed, but from not having it at hand, it is generally never applied.

Door latches often work unpleasantly and with difficulty, from a want of oiling. A few drops upon them will, in such cases, operate like magic.

Fill your wood houses in the winter with cut wood, and touch none of it till next summer, at which time, by becoming dry, it will be worth twice its present value, and there will be no interruption to other work in procuring fuel.

Wood which proves troublesome by snapping on the fire, may be rendered harmless by turning the stick with the heart inwards, when all the snapping will be towards the back of the fire.

Hay racks for feeding animals are best when placed in a vertical position, instead of inclining outwards, as in the former case, there is less liability of the hay being wasted, the heads of the animals will not become filled with hay seed, and their breath will not ascend and render the hay offensive.

To keep up window sash at any desired height, bore a few holes into each side of the window frame, and insert in them common bottle corks, allowing them to project about one fifteenth of an inch. The elasticity of these, and their pressure, will accomplish the desired object.

To extinguish a chimney on fire, the great object is to stop the current of air upwards through it. In some tight houses, this may be effected, in a great measure, by shutting the doors and windows; but best by putting out the fire in the fire place and closing it with the fire board.

Genesee Farmer.

THE SMOKE DISPERSER.

Great inconvenience is often experienced, by smoking chimneys, rendered so in consequence of reflected currents of wind from higher adjacent buildings or hills. One of the best contrivances for preventing this evil, is one termed the *smoke disperser*. It is made of sheet iron, somewhat in the shape of a tub inverted and made to fit closely over the top of the chimney. The sides and top of this vessel are to be thickly punched with holes, from the inside outward, so that the burred irregular rim round each hole may project outward in the direction of the current of smoke. In punching these holes, the tool should have a rounded point, and not be one with sharp edges, otherwise it will *cut out* a piece of the sheet iron, instead of bending it outwards, and would render it less effective.

The contrivance has been found effectual, not only during the prevalence of stong winds, but where artificial means have been employed in directly a powerful current upon it.

J.

Genesee Farmer.

GRAIN MEASURE.—Persons who cannot conveniently procure a half bushel—a peck measure, &c. of the ordinary construction, may make light square boxes, that will answer their present purpose very well.

1st. A box that will measure in the inside, 10 1-4 inches square, and the same in depth will hold a half bushel, and only a table spoonful over.

2d. A box that will measure within 8 inches square and 8 4-10 inches in depth will hold a peck.

3d. A box measuring within 6 1-2 inches square, and 6 3-8 inches in depth will hold four quarts grain measure.

List of payments since the issuance of March No. 1839.

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Lemuel Bogard Esq.—Sevierville Ten.

TERMS OF THE TENNESSEE FARMER.

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